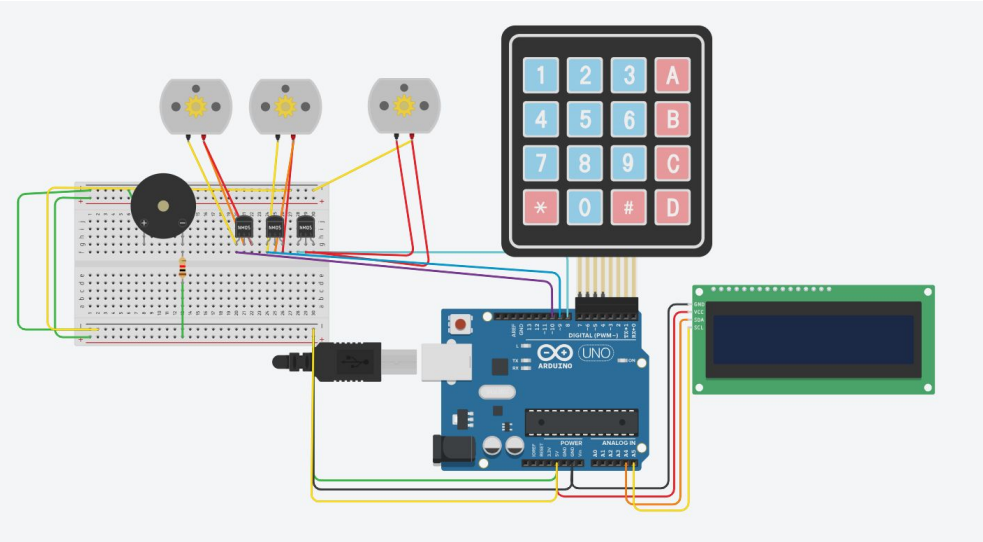
# MediMinder Pro™

## Design Process Review

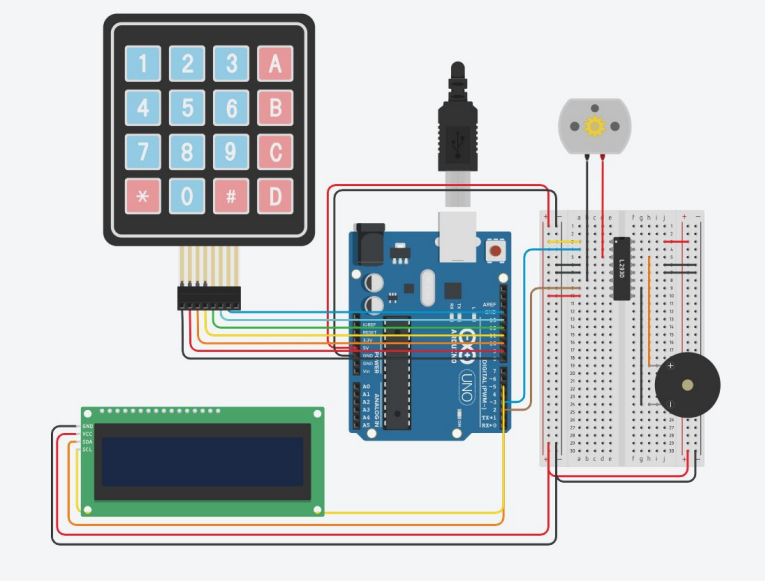
# 1. Electrical schematic V_1.0




*Oct. 20, 2023*

- First electrical schematic drafted
- Connections are shown from LCD screen to STM32:
  - SCL -> PB8 (D15)
  - SDA -> PB9 (D14)
  - VCC -> 5V
  - GND -> GND
- 3 motors included, one for housing door, one for release arm, one for top latch
  - Each has its own transistor
- One buzzer included
- One keypad included

# 1. Electrical schematic V_4.0




*Nov. 12, 2023*

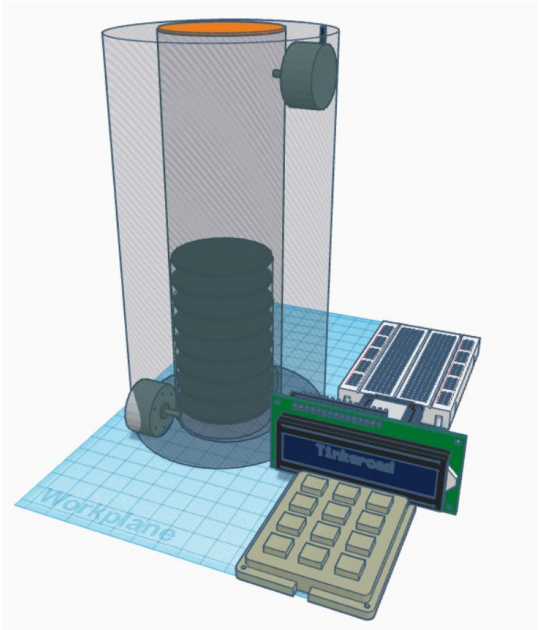
Final electrical schematic drafted

**Key changes:**

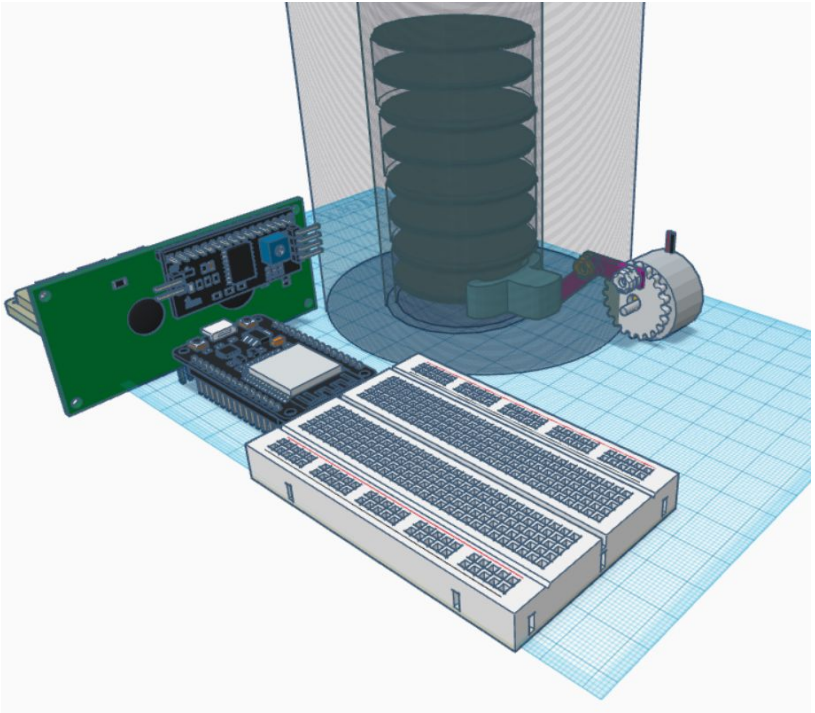
- Added **H-Bridge**, acts as transistor to reduce current sent to motor, makes it safer for STM32
- Buzzer also runs through H-Bridge to reduce current and make buzzer louder
- Reduced to 1 motor
  - For release arm
- Keypad pins attached via M-M wires
- Better cable management

# 2-4. Workspace file folder snapshots

# 5. System Architecture drawing V_1.0



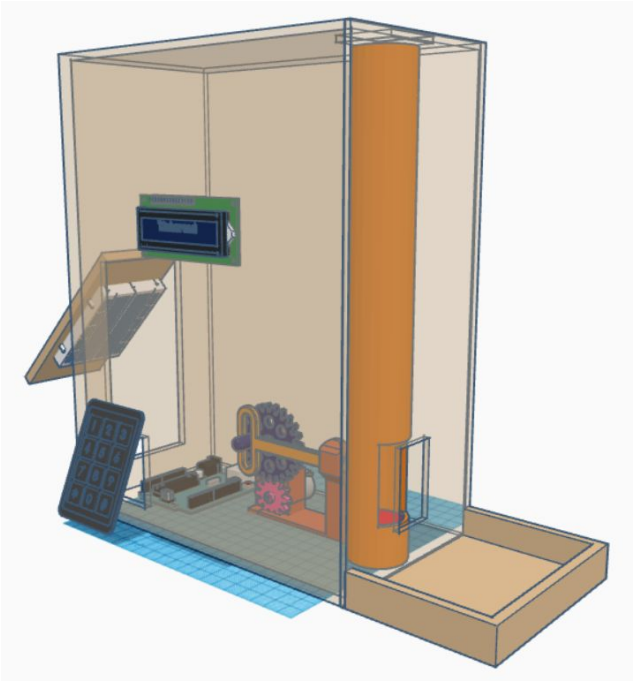

Front view



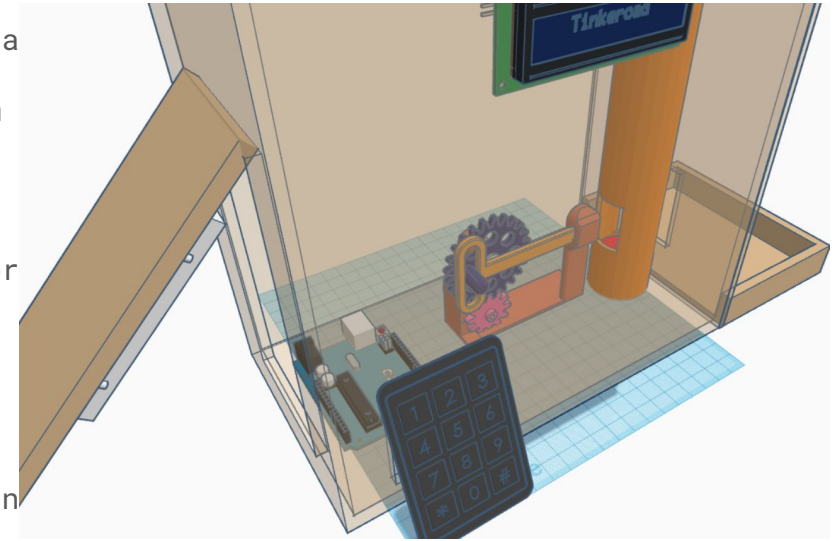
Back view

- Linear motion for release arm is activated through a hinge arm mechanism
- Components are exposed
- One motor controls top latch
- One motor controls housing door

# 5. System Architecture drawing V_2.0

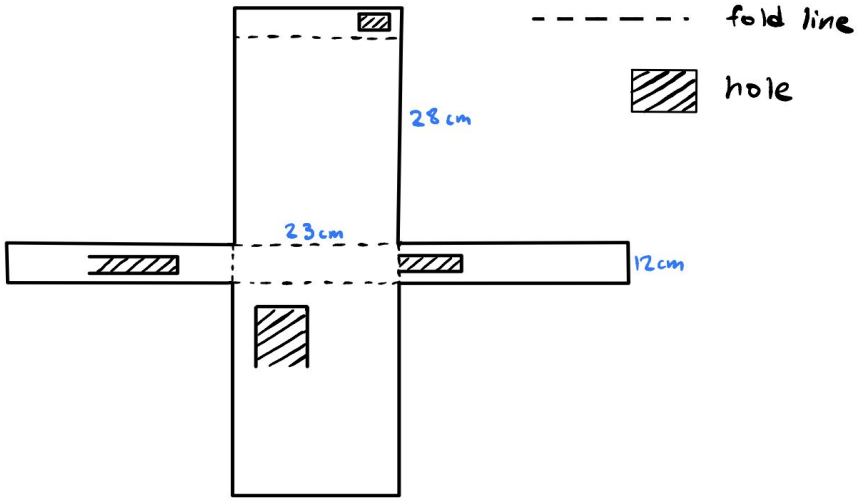


- Linear motion for release arm is activated through a 3D printed scotch and yoke mechanism
- Components are concealed inside
- Box design used for safer storage
- Pouch added to catch dose
- LCD is mounted to box with PCB hidden



# 6. Mechanical drawing - V2.0

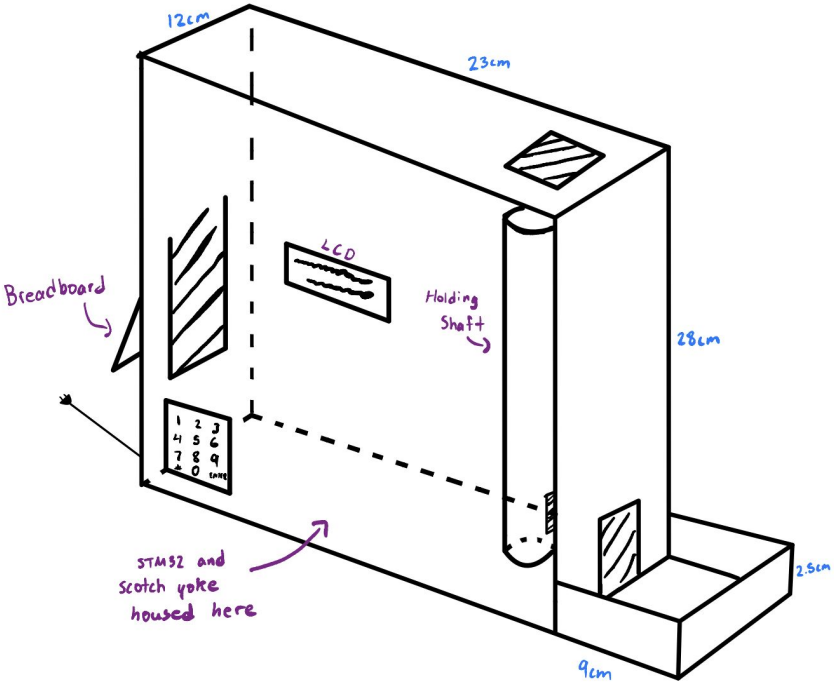
Outer Casing:




Holding Shaft:

# 6. Mechanical drawing - V2.0

Full Scale Drawing




- In V1.0 we planned to 3D print the outer casing and holding shaft, however due to printing difficulties we switched to cardboard
- Holding shaft had to be made out of a paper towel roll, and Kinder egg toy holders were substituted for medication containers
- Shape changed to rectangular prism from cylinder

Drawing drafted November 18th, 2023